

I 49045-66 EMT(d)/EMT(m)/EMP(v)/EMP(t)/EMP(k)/EMP(h)/EMP(l) JDE(c) JD/EM

ACC NR: AR6009959

SOURCE CODE: UR/0137/65/000/012/D044/D044

AUTHOR: Makarov, I. P.

TITLE: Introduction of tube reduction with pull at the Novosibirsk Metallurgical Plant

SOURCE: Ref. zh. Metallurgiya, Abs. 12D331

REF SOURCE: Sb. Materialy Konferentsii po teorii i praktike redutsir. trub. Sverdlovsk, 1965, 144-154

TOPIC TAGS: metal rolling, metal tube, rolling mill, mathematic analysis

ABSTRACT: The principal technological parameters in the reduction of tubes include: change in the wall thickness of tube; reduction of tube; rate of advance of tube into reduction mill; extent of pull; rate of emergence of tube from mill or the ability of the reduction mill to assure a specified reduction of tube; extent of pull required to obtain the desired reduction of tube. On examining in detail the kinematics of the drive of a reduction mill where the main drive serves to assure tube deformation over the diameter and has an adjustable number of revolutions $n_m = 500-1000$ r.p.m. while the auxiliary drive serves to assure the reduction in tube wall thickness, $n_a = 120-1500$ r.p.m., and where the first two stands are driven from the

Card 1/2

UDC: 621.774.35.005

46
45
B

MAKAROV, I.P.; KRASNOZHENOV, M.S.; OSTANIN, D.I.

Our methods for the maintenance of tracks with asbestos ballast.
Put' i put. khoz. 7 no.5:18-19 '63. (MIRA 16:7)

1. Chleny Obshchestvennogo konstruktorskogo byuro Ishimskoy
distantssii Sverdlovskoy dorogi.
(Railroads--Track) (Ballast (Railroads))

1 31296-65

ACCESSION NR: AR5004795

solution on $[x_0, x_2]$ the initial function is specified on $[x_2, x_2 + \tau]$ and the equation is integrated on the left. The possibilities are investigated of smoothing the solutions at the point x_0 by adding constant terms to the initial functions, or, in the more general case, by choosing the parameters if the initial functions depend on several parameters. G. Kamenskii

SUB CODE: NA

ENCL: 00

2/2

1. 11240-13 Ref(s) Pg=1 1 of 1

REGISTRATION NR: AR5034795

S/0044/64/000/011/B047/B047

SOURCE: Ref. zh. Matematika, Abs. 118216

AUTHORS: Kapralov, M. S.; Makarov, I. P.; Potlov, V. V.

TITLE: Concerning the use of a differential equation of the neutral type

CITED SOURCE: Uchen. zap. Ryazansk. gos. ped. in-ta. V. 35, 1963, 84-89

TOPIC TAGS: differential equation, approximate solution, integration, neutral differential equation

TRANSLATION: The following equation is considered:

$$y'(x) = a(x) y(x + \tau \operatorname{sign}(x - x_0)) + f(x). \quad (1)$$

The solution is sought on the segment $[x_{10}, x_{20}]$ and it is assumed that x_0 is an interior point of this segment. The solution of (1) is found by the method of steps, wherein to find the solution on $[x_{10}, x_0]$ the initial function is specified on $[x_{10} - \tau, x_{10}]$ and the equation is integrated on the right, while to find the

Cont. 1/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

D 2312-65

ACCESSION NR: AH002371

SUB CODE: MA

ENCL: 00

0

Card 2/2

12/22/65 ENT(d) IJP(s)

ACCESSION NR: AR5002271

S/0044/64/000/010/B037/B037

SOURCE: Ref. zh. Matematika, Abs. 10B171

AUTHOR: Makarov, I. P.

TITLE: Oriented systems 16

CITED SOURCE: Uch. zap. Ryazansk. gos. ped. in-t, v. 35, 1963, 147-160

TOPIC TAGS: oriented system, properly oriented matrix, improperly oriented matrix, nonlinear system

TRANSLATION: On the basis of Lyapunov's secondary method and some results obtained by I. G. Malkin, analytical proof is given for sufficient conditions of stability and non-stability of the zero solution of a weakly nonlinear system, conditions which the author had earlier obtained by the topological method (RZHMt., 1962, 3B219). In the formulation the concept of properly and improperly oriented matrices is used. B. Demidovich

Card 1/2

POTOTSKIY, Mikhail Vladimirovich; MARGULIS, A.Ya., dots., retsenzent;
SHOLASTER, N.N., dots., retsenzent; MAKAROV, I.P., dots.,
retsenzent; SHABASHOV, T.K., retsenzent (Noginsk); NIKITINA,
N.I., red.

[What is being studied in a mathematical analysis course]
Chto izuchaetsia v kurse matematicheskogo analiza. Moskva,
Prosveshchenie, 1965. 86 p. (MIRA 18:8)

MAKAROV, Irinarkh Petrovich; VERCHENKO, I.Ya., prof., red.; TAL'SKIY,
D.A., red.; GOROKHOVA, S.S., tekhn. red.

[Theory of functions of real variables] Teoriia funktsii deistvitel'-
nogo peremennogo. 2. izd. Pod red. I.IA.Verchenko. Moskva, Vys-
shaia shkola, 1962. 194 p. (MIRA 15:6)
(Functions of real variables)

The stability tube for a system

S/044/62/000/003/026/092
C111/C222

The fundamental assumptions are: 1) the matrix $\left\| \frac{\partial f_i}{\partial x_k} \right\|$ is reducible

to the diagonal form by certain transformations (adding one row (column) multiplied with a positive number to another), whereby the elements for fixed t, x_1, \dots, x_n have the same sign; 2) $(x_i - \bar{x}_i)f_i \leq 0$ or $(x_i - \bar{x}_i)f_i > 0$ everywhere except on the surfaces $f_i = 0$. /A

[Abstracter's note: Complete translation.]

16.3400

S/044/62/000/003/026/092
C111/C222AUTHOR: Makarov, I. P.

TITLE: The stability tube for a system

PERIODICAL: Referativnyy zhurnal, Matematika, no. 3, 1962, 48,
abstract 3B219. ("Uch. zap. Ryazansk. gos. ped. in-t", 1960,
24, 93-103)TEXT: The results of the dissertation by S. A. Samedova (MGU 1950)
are applied to the system

$$\frac{dx_i}{dt} = f_i(t, x_1, \dots, x_n), \quad i = 1, \dots, n. \quad (1)$$

Let the solution curves $x_i = \bar{x}_i(t)$ of the system $f_i(t, x_1, \dots, x_n) = 0$,
 $i = 1, \dots, n$ lie in the strip $\bar{\Gamma}_i : t_0 \leq t < \infty, c_i \leq \bar{x}_i(t) \leq d_i$.

Conditions are given under which the integral curves of the system (1)
from a certain t on, lie in the interior or exterior of the topological
product of the strips $\bar{\Gamma}_i$ or the "widened strips" $\bar{\Gamma}_i^* : t^* \leq t < \infty$,

$$c_i - \alpha_i \leq x_i(t) \leq d_i + \beta_i.$$

Card 1/2

JA

AUTHOR: Makarov, I.P. SOV/42-13-3-39/41
TITLE: Mathematical Life at Ryazan' (Matematicheskaya zhizn' Ryazani)
PERIODICAL: Uspekhi matematicheskikh nauk, 1958, Vol 13, Nr 3, pp 249-250 (USSR)
ABSTRACT: This is a report on the activity of the seminar on the qualitative theory of differential equations, founded in 1952 at the Ryazan' pedagogical institute. The seminar is in constant communication with the corresponding seminar of Professor V.V.Nemytskiy at Moscow. At the suggestion of the members of the seminar in 1956 the Ryazan' Physical-Mathematical Society was founded. During the time from April 17, 1956 to July 19, 1957 seven lectures on mathematical subjects have been given in the society.

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7-10-59

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SOV/1845

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Theory of Functions of a Real (Cont.)

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Theory of Functions of a Real (Cont.)

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Exercises

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Theory of Functions of a Real (Cont.)

SOV/1845

he applies to concepts of an integral more extensive than the concept of the Riemann integral. After each chapter a number of problems for student exercises are given. The author thanks P.S. Novikov, Corresponding Member, Academy of Sciences, USSR; Professor N.V. Smirnov; Professor A.G. Pinsker; Ye.G. Shul'geyfer; Professor I.Ya. Verchenko; and coworkers of the Department of Mathematical Analysis of the Ryazanskiy gosudarstvennyy pedinstitut (Ryazan' State Pedagogical Institute), especially Docent A.A. Fridman, Aspirant V.F. Voronov, and Aspirant V.V. Potlov, for their help in producing the book. References appear in footnotes throughout the book.

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Card 2/6

16(1)

PHASE I BOOK EXPLOITATION

SOV/1845

Makarov, Irinaikh Petrovich

Teoriya funktsiy deystvitel'nogo peremennogo; uchebnoye posobiye dlya pedagogicheskikh institutov (Theory of Functions of a Real Variable; a Textbook for Pedagogical Institutes) Moscow, Uchpedgiz, 1958. 174 p. 25,000 copies printed.

Ed. (Title page): I.Ya. Verchenko; Ed. (Inside book): L.G. Nemtsova; Tech. Eds.: A.F. Fedotova and N.N. Makhova.

PURPOSE: This book is intended as a textbook for students of pedagogical institutes.

COVERAGE: The author attempts to acquaint students with important mathematical concepts and problems which will be needed in their future work as teachers of mathematics. He presents the general set theory which he applies to the analysis of functions and continuous curves. The fundamentals of measure theory are given, especially a detailed presentation of Jordan's measure, which

Card 1/6

MAKAROV, I.P., dotsent

Sign of convergence for a certain class of series. Uch.zap.
RGPI 13:315-323 '56. (MIRA 12:8)
(Convergence)

USSR/Mathematics - Stability of Jan/Feb 52
Liapunoff

"New Criteria Governing Stability According to Liapunoff (Lyapunov) in the Case of an Infinite Triangular Matrix," I. P. Makarov, Ryzan'

"Matemat Sbor" Vol XXX (72), No 1, pp 53-58

Introduces a more rigid definition of stability for infinite systems, which requires not only arbitrary smallness of the modulus of each component but also arbitrary smallness of the sum

203744

USSR/Mathematics - Stability of Jan/Feb 52
Liapunoff (Contd)

of the moduli of these components. Such a definition is of greatest interest from the standpoint of its practical application. Considers triangular matrices with constant and variable coefficients. Submitted 3 May 51.

203744

MAKAROV, I. P.

PA 3/50147

MAKAROV, I. P.

USSR/Mathematics - Differential Equations 11 Sep 49
Nonhomogeneous

"Conditions Governing the Tendency of the Solutions of an Infinite Nonhomogeneous System of Differential Equations Toward Zero," I. P. MAKAROV, 4 pp

"Dokl. Ak. Nauk SSSR" Vol. LXVIII, No. 2 (1958), 225-228

Considers system of differential equations $\frac{dx_i}{dt} = p_{ik}(t)x_k + f_i(t)$ (summed from $k=1$ to n) to infinity, and $i=1, 2, \dots$, where $p_{ik}(t)$ is a continuous function of time t , starting in a certain moment of time $t_1 > 1$. Determines conditions which must be imposed on $f_i(t)$ so that all solutions

3/50147

USSR/Mathematics - Differential Equations (Contd)

11 Sep 49

of the systems will tend toward zero as t tends toward infinity. Submitted by Acad. I. P. Petrovskiy, 8 Aug 49.

3/50147

~~W. G. P. New criteria for stability according to
the method of the class of an l -th order system
Doklady Akad. Nauk SSSR (US) 30: 10-12 (1974)
(Russian)~~

Stability in the sense of Lyapunov (with $n = \text{form}(\sum_{i=1}^n x_i^2)$) is investigated in the case of the system $\dot{x} = \sum_{i=1}^n f_i(x)$.

(1.1) $y' = -\lambda y + \sum_{i=1}^n p_i(t)y^i$, where the p_i are continuous functions of t . Theorem 1.1 of [1] for $\lambda \geq 2$, the following conditions are assumed: (i) $p_1(t) - p_2(t) \leq 0$, $|p_1| \leq 1$, $|p_2| \leq 1$, $0 \leq p_3(t) - p_4(t) \leq 2(p_1(t) - p_2(t))$ if $p_1(t) - p_2(t) \geq 0$, $p_3(t) - p_4(t) \leq 2(p_1(t) - p_2(t))$ if $p_1(t) - p_2(t) \leq 0$, where p_3 and p_4 are positive constants such that the series $\sum_{i=1}^{\infty} p_i(t)/2^i$ are uniformly bounded. It is then shown that the solution $y = 0$ is asymptotically stable if and only if (ii) is replaced by (ii') if $\lambda < 2$. The order of magnitude of $p_1(t)$ is greater than that of $p_2(t)$, $p_3(t)$ or $p_4(t)$, then the solution $y = 0$ is unstable (see [2]).

MAKAROV, I. P. Cand. Physicomath. Sci.

Dissertation: "New Criteria of Stability According to Lyapunov in the Case of a Finite and Infinite Triangular Matrix." Moscow Order of Lenin State U. imeni M. V. Lomonosov, 11 Jun. 1947.

SO: Vechernyaya Moskva, Jun. 1947 (Project #17836)

USSR/Cultivated Plants - Potatoes, Vegetables; Melons.

11.

Abs Jour : Russ Educ - Biol., No 10, 1958, 44099

Inst : Moscow Agricultural Academy Inoni K.A. Timiryazev

Author : Makarov, I.P.

Title : Comparative Effectiveness of Different Kinds of Tilling the Arable Layer Under the Potato in the Central Regions of the Non-Chernozem Belt.

Orig Pub : Dokl. Mosk. s.-kh. akad. in K.A. Timiryazeva, 1957, vyp. 28, 101-106.

Abstract : The two-year experiments at the Experimental Station for Field Cultivation of the Moscow Agricultural Academy established that on weed-free soils when organic mineral mixtures are used, the loosening of the soil should be done with the plow without the moldboard to the depth of the tillable layer. On soils with a deep stratification of

Card 1/2

MAKAROV, I. P. Cand Agr. Sci -- (diss) "Comparative effectiveness of various
methods of autumn tillage for potatoes in the central ^(of salinity) ^(cultivation) ^{regions} ~~regions~~ of
the nonchernozem belt." Mos, 1957. 21 pp (Mos Order of Lenin Agr Acad im
K. A. Timiryazev), 110 copies (KL, 3-58, 98)

MAKAROV, I. P.

Bee Culture-Equipment And Supplies

"Swarming box". Pchelevodstvo, 29, No. 5., 1952

9. Monthly List of Russian Accessions, Library of Congress, August ²195~~3~~, Uncl.

L 9655-66

ACC NR: AP5028987

1 - water-containing tank; 2 - hinged cover; 3, 4, 6 - pneumatic cylinders; 5 - solvent (water) pump; 7 - carrying can; 8, 9, 10 - valves; 11 - lower tank chamber; 12, 13 - prismatic knife-currets. Inside the tank 1 is the (initially) hermetically sealed salt container.

makes the cyanogen solution manufacturing process completely safe. Orig. art. has: 2 figures.

SUB CODE: 11, 13 / SUBM DATE: none


Card 8/3

L 9655-66
ACC NR: AP5028987

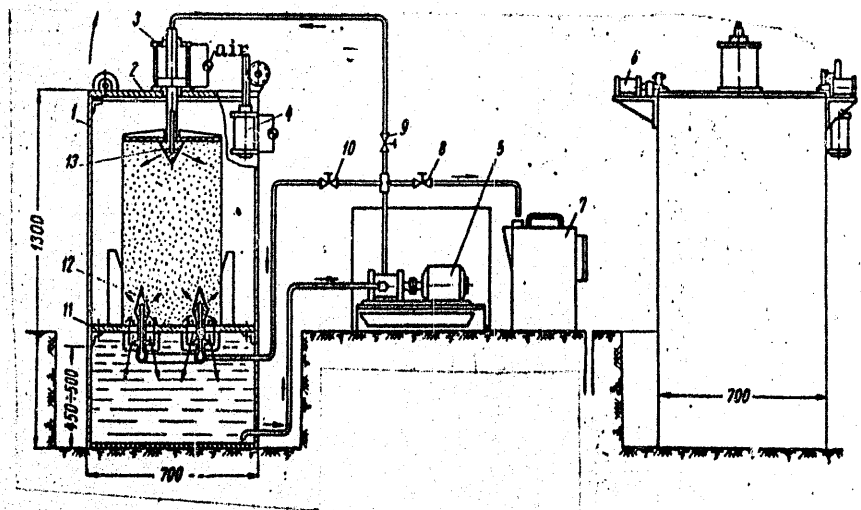


Figure 1. Scheme of the device for the preparation of toxic solutions.

Card 2/3

N L 9655-66 EWT(d)/EWT(1)/EWA(j)/EWT(m)/EWP(v)/EWP(j)/EWA(b)-2/EWP(k)/EWP(h)/
ACC NR: AP5028987 EWP(1)/EWA(c) RO/RM
SOURCE CODE: UR/0118/65/000/009/0008/0009
AUTHOR: Gridnev, A. Ya. (Engineer); Makarov, I. N. (Candidate of technical sciences)
ORG: none

TITLE: A mechanized device for the preparation of highly toxic substances

SOURCE: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 9, 1965, 8-9

TOPIC TAGS: aqueous solution, material mixing, toxicology, remote control, chemical plant equipment, remote control system, cyanogen, metal coating, protective coating

ABSTRACT: Numerous galvanic coating operations utilize cyanogen solutions which are extremely toxic. To increase the productivity of such procedures making them at the same time completely safe, the machine building factory of Mosgorsovnarkhoz (mashinostroi-
tel'nyy zavod Mosgorsovnarkhoza) developed an automated device for the preparation of highly toxic solutions shown in Fig. 1. Remote control equipment

Card 1/3

UDC 621.357.7.035.14-52

MALYUTIN, A.V., kand. tekhn. nauk; MAKAROV, I.N., kand. tekhn. nauk

Overall mechanization and automation of a forge shop. Mekh. i
avtom. proizvod. 19 no.4:1-7 Ap '65. (MIRA 18:6)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

I.O. Makarov; 1891-1963, obituary. Vop. psikhol. 9 no.5:190 S.O '63.
(MIRA 17:2)

Received

MAKAROV, I.M., inzh.

Calculating the depth of cable driving into sloping ground. Trans.
strof. 13 no.12:58 - D'63 (MIRA 17:7)

MAKAROV, I.M.

Repair of condensers of low-pressure columns of the AK-12 separation
block. Khim.prom. no.2:118-119 Mr '54. (MIRA 7:6)
(Packed towers)

MAKAROV, I.M.

Original Source: KGB Archives

Mechanization of cleaning and degreasing (gas) cylinders. Khim.prom.
no.1:46-47 Ja-F '54. (MLRA 7:4)
(Cylinders)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

MAKAROV, I. M., Cand of Tech Sci -- (diss) "Converting Instruments for Model-Scale Operations," Moscow, 1959, 16 pp (Institute of Automatics and Telemechanics, Acad of Sci USSR) (KL, 1-60, 122)

Transactions of the National Conference on
Problems of Production Automation in Bucharest

103-19-5-13/14

Operational Amplifier for Electron Models", Engineer I. M. Makarov (USSR) on "The Selection of the Optimum Characteristics of Electrodynanic Couplings for Systems of Automatic Control". In the third section 30 lectures were held. These were devoted to the automation of Roumania's national economy. After the termination of the conference the newly built mineral-oil refinery in Ploeshti, the Institute for Power Engineering, the Institute for electrical engineering, the Military-Technical Academy in Bucharest and the chemical factory for the production of superphosphate and sulfuric acid were visited.

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1. Industrial production---Automation 2. Conferences--Pro-
duction Automation--Bucharest

Card 5/5

Transactions of the National Conference on
Problems of Production Automation in Bucharest

103-19-5-13/14

G. Moisil, Member of the Academy of Roumanian Academy of Sciences, on "The Characteristic Equation of the Trigger-Action Relay". The following foreign delegates spoke in the first section: Doctor S. Vengzhin (Poland) on "Some Problems of the Theory of Nonlinear Systems of Automatic Control", Doctor I. Benesh (CSR) on "Statistical Method for Investigating the Dynamics of Control Systems", Engineer L. Yanoki (Hungary) on "A New Method for Determining the Characteristics of Electric Waves With One Phase". In the second section 27 lectures were held: Engineer Ye. Balash on "Economic Considerations in the Automation of Capitalist Countries", I. Teodorov and I. Lemin on "Automation in the Countries of the Socialist Camp", Engineer V. Tom on "Electron Counters of the Institute for Nuclear Physics of the Roumanian Academy of Sciences", Engineer M. Steru on "Electrical Measurement of Moisture in Materials", Engineer R. Konstantinesku on "The Projection of a Radio-Controlled System in Application to Movable Objects With High Speed", Engineer S. Shekhter on "The Problem Concerning the Method of Designing the"

Card 4/5

Transactions of the National Conference on
Problems of Production Automation in Bucharest

103-19-5-13/14

Roumanian Academy of Sciences, and others spoke on the problems of automation in the individual branches of industry of Roumania, on problems of terminology in automation, as well as on the problems of the training of experts for the automation of industry. The further work of the conference was done in 3 sections. In the first section spoke: M. Marinescu, Corresponding Member of the Roumanian Academy of Sciences and G. Yankulescu, Engineer, on "Synchronous Motors and Motors With Alternating Inductivity as Servomechanisms With Proportional Control". Engineer V. Popov on "Contribution to the Simplification of the Conditions of Stability by A. I. Lur'ye", Engineer D. Damsker on "Construction of the Transition Process in Systems With Nonlinear Controllers", Engineer K. Vazak on "Active Correction Links", Engineer K. Penesku on "Method for Simplifying the Analysis of Continuous Linear Systems of Automatic Control", Engineer N. Shtefanescu on "A Method for Computing Intermittent Systems of Automatic Control",

Card 3/5

Transactions of the National Conference on
Problems of Production Automation in Bucharest

103-19-5-13/14

and Engineer I. M. Makarov, the collaborators of the IAT AS USSR, belonged to the delegation of the USSR. The Roumanian Academy of Sciences does not possess any institute for automation, but a Commission for Automation presided over by I. S. Georgiu, Member of the Academy. The commission has two scientific secretaries. The representatives of the institutes of the Academy and the branches of economy, of the universities, factories, ministries and of the State Planning Authority also belong to it. The conference was called under the direction of this Commission. The conference was opened by I. S. Georgiu, Member of the Academy. Then Professor N. N. Shumilovskiy spoke some words of welcome. In the plenary session Professor N. N. Shumilovskiy, Doctor I. Benesh and Professor D. Mitrovich spoke on the state of automation and testing technique in their respective countries in the individual branches of industry. The Roumanian delegates G. K. Moisil, Member of the Academy, Professor K. Penasko, D. Damsker, Engineer M. Maresh, Engineer A. Abramenski, Corresponding Member of the

Card 2/5

AUTHORS: Makarov, I. M., Shumilovskiy, N. N. 103-19-5-13/14

TITLE: Transactions of the National Conference on Problems of Production Automation in Bucharest (Natsional'naya konferentsiya v Bukhareste po voprosam avtomatizatsii proizvodstva)

PERIODICAL: Avtomatika i Telemekhanika, 1958, Vol. 19, No 5, pp. 491-492 (USSR)

ABSTRACT: From June 5 to 8, 1957 the second national conference on problems of production automation was held in Bucharest. In the conference participated: scientists and automation experts from Bulgaria, Hungary, Poland, Rumania, the CSR, the USSR and Yugoslavia, thus A. Bolevskiy, Corresponding Member of the Bulgarian Academy of Sciences, Professor D. Mitrovich (Yugoslavia), Doctor I. Benesh (SSR), Doctor G. Vengzhin and Professor Lebson (Poland). 99 Lectures were held. Of those the representatives of Rumania held 91 lectures, of the CSR - 2, of Hungary - 2, of Poland - 1, of the USSR - 2 and of Yugoslavia - 1 lecture. Professor N. N. Shumilovskiy

Card 1/5

PA - 2834

The Analytical Treatment of the Stability Problem in an Electro-mechanical Transforming Device.

proved that the inequation $8bc > a$ (a, b, and c are the constants of the plane) is the only condition that, if satisfied, secures the stability of the investigated device in the case of any fluctuations x_0 and sufficiently small fluctuations y_0, z_0 . With a given time constant T of the control winding this condition makes it possible to select the amplification coefficients π and m of the back-couplings of the system under investigation.
(8 illustrations and 5 citations from Slav publications)

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress.

Card 2/2

AUTHOR: MAKAROV, I.M. (Moscow) PA - 2834
 TITLE: The Analytical Treatment of the Stability Problem in an Electro-
 mechanical Transforming Device. (Analiticheskoye issledovaniye
 ustoychivosti dvizheniya elektromekhanicheskogo preobrazuyushchego
 ustroystva, Russian)
 PERIODICAL: Avtomatika i Telemekhanika, 1957, Vol 18, Nr 4, pp 315 - 323
 (U.S.S.R.)
 Received: 5 / 1957 Reviewed: 6 / 1957
 ABSTRACT: One of those devices is investigated by which the parallel current
 voltage of an electron model is transformed into an angle of ro-
 tation. The equations for the motions of the transformer are derived
 and the stability problem is solved. The device is an electro-
 mechanical observation system driven by an electrodynamic coupling
 (EDC). The basic scheme and the elements of the device are described
 individually. There then follows a description of their mode of oper-
 ation and an investigation of the equations of motion. The most
 important characteristic of the system under observation is the
 exactitude of the reproduction of control. Exactitude depends on
 the amount of the amplification coefficient. A too far-reaching
 increase of the latter may, however, lead to a loss of stability.
 By means of the methods of the quality theory of differential
 equations and by the application of the direct method developed
 by Lyapunov it was possible to obtain the desired results. It is

Card 1/2

MAKAROV, I.M.

Selection of geometric dimensions for magnetic conductors and
for electrodynamic coupling diagrams. Avtom. i telem. 17 no.
10:897-909 0 '56. (MIRA 9:11)

(Servomechanisms)

MAKAROV, I.L.; ZHILINKO, M.I.

We cool eggs with the first day. Ptitsevodstvo 9 no.10:20
0 '59. (MIRA 13:2)

1. Direktor Minskoy inkubatorno-ptitsevodcheskoy stantsii (for
Makarov). 2. Zaveduyushchiy tsakhom inkubatsii Minskoy
inkubatorno ptitsevodcheskoy stantsii (for Zhilinko).
(Incubation)

MAKAROV, I.L.
MAKAROV, I.L.

Raising waterfowl is an important measure for increasing meat production in White Russia. Ptitsevodstvo 8 no.3:17-19 Mr '58.
(MIRA 11:2)

1. Starshiy zootekhnik-inspektor Ministerstva sel'skogo khozyaystva BSSR.

(White Russia--Ducks) (White Russia--Geese)

MAKAROV, I.L. [translator]

[Aircraft template development] Izgotovlenie shablonov v samoletostroenii. Skr. avtorizovannyi perevod s angliiskogo I.L. Makarova. Moskva. Oborongiz, 1946. 107 p. (MLRA 7:11)

1. Aero Publishers, inc.
(Airplanes--Design and construction)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

MAKAROV, I.I., kand. tekhn. nauk

Results of field observations of conditions of operation of
thermal electric power plants (TEP) in the USSR.

KAS'YANENKO, Vasilii Ignat'yevich, and. istor. nauk; MAKAROV, I.I.,
red.; RAKITIN, I.T., tekhn. red.

[Great deed of the party and the people; how the Soviet people
achieved the technical and economic independence of the
U.S.S.R.] Velikii podvig partii i naroda; zavoevanie sovet-
skim narodom tekhniko-ekonomicheskoi samostoiatel'nosti SSSR.
Moskva, Izd-vo "Znanie," 1962. 46 p. (Novoe v zhizni, nauke,
tekhnike. I Seriya: Istoriia, no.2) (MIRA 15:4)
(Russia—Economic conditions)

MIROSHNICHENKO, Viktor Savvich, kand. ekon. nauk; KHARAKHASH'YAN, G.M.,
nauchnyy red.; MAKAROV, I.I., red.; NAZAROVA, A.S., tekhn.
red.

[Toward new goals; a new stage in the development of the world-
wide socialist system] Na novykh rubezhakh; novyi etap razvitiia
mirovoi sotsialisticheskoi sistemy. Moskva, Izd-vo "Znanie,"
1962. 29 p. (Novoe v zhizni, nauke, tekhnike. III Seriya:
Ekonomika, no.8) (MIRA 15:5)
(Communist countries--Economic conditions)

ACC NR: AP7002866

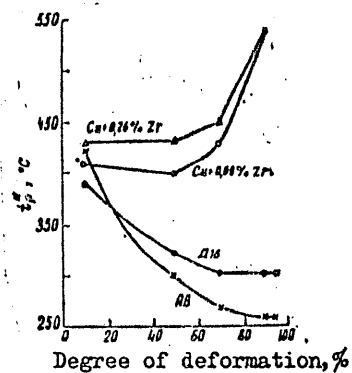


Fig. 1. Dependence of the recrystallization temperature on the degree of cold deformation during cold rolling

for the observed increase in the recrystallization temperature as a result of cold deformation. Orig. art. has: 1 table and 3 graphs.

SUB CODE: 11/ SUBM DATE: 29Sep65/ ORIG REF: 008

Cord 2/2

ACC NR: AP7002866

SOURCE CODE: UR/0149/66/000/006/0159/0141

AUTHORS: Stepanova, M. V.; Makarov, I. I.

ORG: Moscow Institute for Steel and Alloys. Department of Nonferrous, Rare, and Rare Earth Metals (Moskovskiy institut stali i splavov. Kafedra metallovedeniya tsvetnykh, redkikh i redkozemel'nykh metallov)

TITLE: The influence of cold deformation on the onset of recrystallization temperature in aging metals

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 6, 1966, 139-141

TOPIC TAGS: alloy, aluminum alloy, copper alloy, zirconium containing alloy, metal recrystallization/ D16 alloy, AV alloy

ABSTRACT: The effect of cold deformation of alloys D16 and AV and of two Cu-Zr bronzes with 0.09 and 0.26% Zr, respectively, on the recrystallization temperature of these alloys was studied. The study supplements the results of M. V. Stepanova and V. Ye. Mogilevskaya (Izv. VUZ, Tsvetnaya metallurgiya, No. 6, 1963). The metal specimens were hot rolled, annealed, and then cold rolled. The recrystallization temperature (fixed by x-ray techniques) was determined as a function of the degree of cold deformation. The experimental results are shown graphically (see Fig. 1). It is concluded that the formation of a supersaturated solid solution, prior to cold deformation, and its decomposition during recrystallization annealing may be the cause

Card 1/2

UDC: 620.181

ACC NR: AT6030939

butt-welded with an outer bushing (type 2); c - butt-welded with a separator gasket (type 3); d - telescoping joint with perforated, two-sided flange welds (type 4); e - pipe joint wall-to-wall (type 5); f - planar tubular truss with braces attached at an angle of 45 degrees (type 6)

stresses by high drawing lowers the strength of the joint by a factor of 2. Annular nonfusion lowers the durability of the joint more sharply in butt-welded pipes than in planar specimens. Orig. art. has: 16 figures.

SUB CODE: 11, 13/ SUBM DATE: 11Mar66/ ORIG REF: 007

Card 3/3

ACC NR: AT6030939

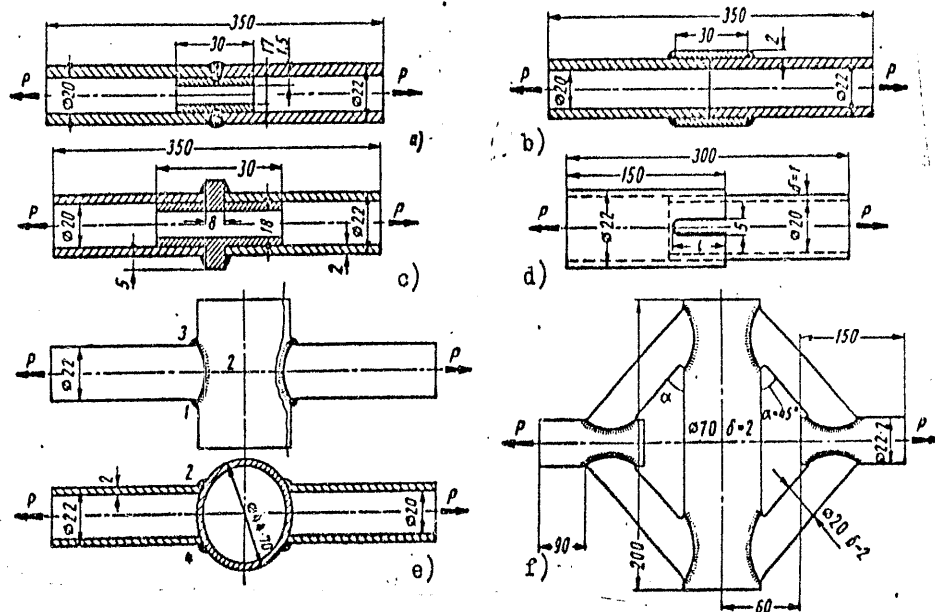


Fig. 1. Studied types of welded joints of thin-walled pipes.
 a - butt-welded with an inner supplementary ring (type 1); b -

Card 2/3

ACC NR: AT6030939 (N) SOURCE CODE: UR/0000/66/000/000/0093/0107

AUTHOR: Makarov, I. I. (Candidate of technical sciences)

ORG: none

TITLE: The vibrational strength of welded joints of thin-walled pipes

SOURCE: Moscow. Vyssheye tekhnicheskoye uchilishche. Prochnost' svarnykh konstruksiy (Strength of welded structures). Moscow, Izd-vo Mashinostroyeniye, 1966, 93-107

TOPIC TAGS: welding, welding technology, butt weld, weld strength, fatigue strength, electrode, pulsator/ UONI-13/45 electrode, VIAM-25 electrode, MUGP-5 pulsator

ABSTRACT: The results from an experimental study of the vibrational strength of various welded joints on thin-walled pipes are presented. The pipes used in this study were made from steel grades 10 and 20, and the types of welds used in the experiments are shown in Fig. 1. The welding of pipe specimens was carried out semi-automatically in CO₂, using UONI-13/45, VIAM-25 electrodes. An MUGP-5 pulsator device was used as the means of producing vibrations of the welded specimens. Curves are plotted indicating the durability of the welded joints as a function of the number of vibration cycles, the type of weld, and the pipe dimensions. It was found that the vibrational strength of welded joints of seamless, thin-walled, steel No. 20 pipes 22 mm in diameter with a wall thickness of 1 mm is greater than the vibrational strength of welded joints of planar specimens of average thicknesses. The removal of residual

Card 1/3

BLINOV, I.A., inzh.; MAKAROV, I.I., inzh.

Pneumatic conveying of flax waste. Mekh. i avtom. proizv. 18
no.6:22 Je '64. (MIRA 17:9)

24350-62 EMT(d)/EMT(h)/EFF(s)/EMA(d)/EMP(V)/EPR/EMP(j)/T/EMP(t)/EMP(k)/EMP(h)/EMP(b)/
 EMP(l) Po-L/Pf-L/Ps-L/Ps-L NW/JD/HM/RM
 ACCESSION NR: AR4039579 8/0081/64/000/005/3048/3048

SOURCE: Ref. zh. Khimiya, Abs. 58276

AUTHOR: Makarov, I. I.

TITLE: Methods of welding plastics 15

CITED SOURCE: St. Progressivn. metody svarki i razki metallov. VII'nyus, 1963, 57-75

TOPIC TAGS: welding, plastic welding, welding tool, electric welding, ultrasonic welding, polyvinylchloride, weld seam property 14

TRANSLATION: Some methods of welding plastics are briefly described, especially welding with heated air or gas, welding with a heating element (blow), electric point welding, welding with high frequency currents, ultrasonic welding and welding by friction. The author also describes the tools used for this purpose, and some of the physical and mechanical properties of the weld seams obtained. Special attention is given to the welding of polyvinylchloride. Yu. Vladimirov

SUB CODE: MC, NM

ENCL: 00

Card 1/1

45
B

Properties of...

S/549/62/000/106/001/010
I003/I203

increases the vibration resistance of the weld by up to 15%. The static strength of the weld is equal to that of the 1Kh18N9T steel, up to a temperature of 550°C and cannot be increased by heat treatment. By heating to 1030°C and quenching in water the weld is completely homogenized and the Kh17N2 sheet acquires a high degree of hardness. The short-time strength of butt welds between 1Kh18N9 and Kh17N2 sheets is the same as the ultimate strength of the Kh17N2 sheet. Welds between 1Kh18N9T and Kh17N2 are less sensitive to stress raisers than those between 1Kh18N9T sheets. Kh17N2 steel and Kh12N19 steel can be successfully welded only when the sheets are in the annealed and in the hardened condition, respectively. In order to increase the strength of the weld between these steels it must be tempered and precipitation-hardened. The general conclusion of the authors is that the technology of welding and heat treatment of thin sheets of heat-resistant materials must be chosen for each individual case. There are 23 figures.

Card 2/2

1 2390

11862
3/549/62/000/106/001/010
1003/1203

AUTHORS: Makarov, I.I., Cand. Techn. Sciences and Makarova, V.I., Cand. Techn. Sciences

TITLE: Properties of welding joints between thin plates of various heat-resisting materials

SOURCE: Moscow. Vyssheye tekhnicheskoye uchilishche. [Trudy] no. 106, 1962. 47-65. Svarka tsvetnykh splavov i nekotorykh legirovannykh staley

TEXT: Welding of thin (0.5-1.5mm) sheets of different heat-resisting steels raises technological difficulties as cracks may be formed both during welding and during subsequent treatment. The present work elucidates some problems concerning heat-treatment, corrosion resistance, and vibration resistance of welds formed between thin sheets of X17H2 (Kh17N2) steel and thin sheets of either X18H9T (1Kh18N9T) steel or hardenable X12H19 (Kh12N19) steel. The results of the investigation showed that satisfactory welds between sheets of (1Kh18N9T) and (Kh17N2) can be obtained by the argon-shielded-arc welding process, using direct current and (1Kh18N9T) wire. Cooling the edges during welding

Card 1/2

Friction welding of plastics

27808
S/549/61/000/101/006/015
D256/D304

tained. Under static internal pressure welded tubes withstand 70-70 k/cm² before bursting, corresponding to a tension of 300-350 k/cm². Three types of specimen were tested in compression, rods, unwelded and welded tubes and the results were shown graphically. Engineer V.I. Girsh, and laboratory workers V.D. Klimov and Yu.N. Orlov participated in the work described above. There are 9 figures and 4 references: 2 Soviet-bloc and 2 Non-Soviet-bloc.

Card 4/5

Friction welding of plastics

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S/549/61/000/01/006/015
D256/D304

rotated, while the other is held rigidly in the device 4 but can be moved in the direction of its axis. The device is fastened to the transverse slides of the carriage 5 in place of the tool holder. The welding pressure is applied manually through the tail-stock 6, through the fixed blank after complete stoppage of rotation. At 400 rpm continuous contact for 15-25 sec. is required between the fixed and rotating tubes to heat the joint to the welding temperature at very low pressure (0.5-0.8 kg). The ends are turned before welding and it is vital that they be sized, since the tubes supplied by industry have considerable ovality and non-uniformity. Sizing of the ends is accomplished by heating to the 100-120° condition in the device. The joints are tested in tension and compression, and by internal pressure. In tension the u.t.s. of all-parent-metal-tubes is 530-690 k/cm² - mean 600 k/cm². These are slightly reduced in section between the grips to prevent fracture within the grips at 390-450 k/cm². Butt welds fracture at 240-314 k/cm², mean (of 5) 270 k/cm², or 45-50 % of parent material u.t.s. Fracture is always through the weld. It is felt that with more precise regulation of welding conditions, a stronger joint can be ob-

Card 3/5

Friction welding of plastics

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D256/D304

used for joining very thin films. Heat is generated in a metal strip several mm wide firmly pressed against the film being welded. The overheating associated with the use of a hot air blast can be avoided. d) H.F. current welding can only be used on plastics containing a polar group. These include p.v.c., polyamide, polymethylacrylates, but not polyethylene, polyisobutylene, polystyrene. The method relies on the ability of the materials mentioned to become heated in the high-frequency field of a condenser, whose shape corresponds to that of the required weld. Particularly weldable are soft p.v.c. and hard p.v.c. films. Sheets 2.5-4.0 mm thick can be welded, and tubes butt-welded. Friction welding is a simple method, not requiring great expenditure, and is most readily applied to objects of rotational symmetry (rods, tubes). The present work relates to the friction butt-welding and joint mechanical properties of p.v.c. tubing 33 mm in diameter and wall thickness 3 mm. A TB-16 (TV-16) lathe is used together with a device (Fig. 2) mainly employed to guarantee coaxiality of the tubes during welding. A tube 1, held in the lathe chuck 2 over a steel plug 3, is

Card 2/5

1.2310

27808

S/549/61/000/01/006/015
D256/D304

AUTHOR: Makarov, I.I., Candidate of Technical Sciences,
Docent

TITLE: Friction welding of plastics

PERIODICAL: Vyssheye tekhnicheskoye uchilishche. Trudy. Svarka
tsvetnykh splavov, redkikh metallov i plastmass,
no. 101, 1961, 124 - 131

TEXT: In welding thermoplastic materials, the welding temperature is higher than that at which decomposition commences. The available welding methods are briefly described: a) Hot air can give a variety of joints from sheets, tubes, and shapes. The heat source is a jet of air heated to 300°C which reaches the heat source at about 200°, and a filler material is added from a rod. Joint strength would be 0.3-0.6 of the parent material strength. b) A heating element is widely used for making gaskets and linings from soft PVC and butt and longitudinal welds in hard PVC. c) Electro-impulse welding is a variety of heating-element welding and is

Card 1/5

S/135/60/000/011/003/016
A006/A001

Strength of 3W-659 (EI659) Steel Butt Welds Under Variable Load

butt welds is by 1.5 times higher than that of low-carbon steel butt joints.
The value of the effective concentration coefficient does not depend on the poor
penetration depth. There are 10 figures and 3 Soviet references.

ASSOCIATION: MVTU imeni Bauman

Card 3/3

S/135/60/000/011/003/016
A006/A001

Strength of 34-659 (EI659) Steel Butt Welds Under Variable Load

for EI659 butt welds by symmetrical bending of specimens are: 1.95 with reinforcement of seams; 1.12 with reinforcement of seams and deconcentrators; 2.2 for scarf joints; 2.8 when the lower edge was poorly penetrated; 2.1 for poorly penetrated butt welds of 30KhGS steel; 1.9 for St.3 steel; in tension by a pulsation cycle the values were: 1.4 - 1.5 for EI659 steel butt welds with reinforcement of seams; 3 - 3.7 ($r = 0.37$) for scarf welds. Vibration strength of butt welds from which the reinforcement was removed was not different from the vibration strength of the base metal (surface after rolling). The presence of a reinforcement in low carbon steel butt welds reduces its endurance limit by 50% without raising the static strength. In butt welds of high-strength EI659 steel endurance strength is reduced by a factor of 2. The degree of reduction of the endurance strength does not depend on the height of the reinforcement. The use of deconcentrators of 0.5 mm depth under symmetrical bending load, raised the vibration strength of reinforced butt welds by 70%. In comparison to butt welds, scarf joints are less efficient since, they are less resistant to bending and particularly to tension due to the different thickness of the butt-welded sheets. The sensitivity to stress concentrators of high-strength EI659 steel

Card 2/3

S/135/60/000/011/003/016
A006/A001

AUTHOR: Makarov, I.I., Candidate of Technical Sciences

TITLE: Strength of EI659 (EI659)¹⁸ Steel Butt Welds Under Variable Load²⁶

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 11. pp. 8-11

TEXT: The author discusses results of experimental investigations into the vibration strength of some types of EI659 steel welds and compares the sensitivity to stress concentrators of EI659, 30XГC (30KhGS)¹⁸ and CT.3 (St.3)¹⁸ steel. EI659 steel was butt welded in heat treated state ($\sigma_B = 110 - 120 \text{ kg/mm}^2$, $\delta = 12 - 14\%$) with УОНИ-13/85 (UONI-13/85) electrodes and on the automatic machine under АН-348А (АН-348А) flux and with 20ХМА (20KhMA) wire. 30KhGS steel was welded with UONI-13/85 electrodes and St.3 steel with МЗ-04 (MEZ-04) electrodes. Heat treatment after welding was not performed. The author investigated butt welds with a reinforcement, welds from which the reinforcement was removed and scarf joints, subjected to plain bending on a ИУ-500 (IU-500) machine, designed by НИИВСПРОМ and on a pulsator with cycle characteristics $r = 0$ for 3.5 mm thick specimens and with $r = 0.37$ for 10 mm thick specimens. The tests yielded the following results: The values of effective concentration coefficients obtained

Card 1/3

MAKAROV, I. I.

Synthesis of methanol on a zinc-chromium catalyst at reduced
concentrations of carbon monoxide in the circulating gas. Khim.i
tekh.topl.i masl 5 no.6:17-24 Je '60. (MIRA 13:7)
(Methanol) (Catalysts)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

MAKAROV, I. I.

Dissertation: "Effect of Some Defects on the Mechanical Properties of Butt-Welded Connections." Cand Tech Sci, Moscow Order of Labor Red Banner Higher Technical School imeni Bauman, 17 May 54. Vechernyaya Moskva, Moscow, 7 May 54.

SO: SUM 284, 26 Nov 1954

BTR

28

7934: Welding of Nonmetallic Materials. (In Russian.)
I. I. Makarov. *Artegennoe Delo*, v. 22, Oct. 1951, p. 25-27.
Vinyl plastic specimens were welded using a gas torch. The
joints were found to have about 40% of the tensile strength of
the base material and became very weak and brittle in bending
and impact tests. Data are tabulated and illustrated.

USSR/Engineering - Welding, Methods : Oct 51

"Welding of Nonmetallic Materials," I. I. Makarov,
Engr

"Avtogen Delo" No 10, pp 25-27

In 1950 MVTU imeni Bauman conducted preliminary
expts for welding "viniplast" - product obtained
by special treatment of polychlor-vinyl resin.
Only manual method by heating base material and
welding rod with hot air was investigated "or this
type of thermoplastic products. Discusses weld-
ing of pipes with application of inner sleeve.
Welding by method described is quite possible but

202P45

USSR/Engineering - Welding, Methods Oct 51
(Contd)

mech properties of weld material are very low:
Tensile strength at room temp is only 40% of that
for base material, bending angle -0°.

202P45

MAKAROV, I. I.

Concerning the Welding of "3M" Copper Steels. (In Russian.) N. N. Prokhorov and I. I. Makarov. *Avtosvarnnoye Delo* (Welding), no. 4, 1947, p. 25-27.

Experimental set up is diagrammed. Properties of the base materials and of the weld metal resulting from use of different electrodes and techniques are tabulated and charted. Recommendations are given. The above steels contained: 0.16-0.25% Cu; 0.20-0.55% S; 0.18-0.53% P; 0.56-0.40% Mn; 0.02% Si; and 0.14-0.15% C.

USSR/Cultivated Plants. General Problems.

11

Abs Jour : Ref Zhur-Biol., No 15, 1958, 68064

Author : Makarov, I. F.

Inst : Leningrad Agricultural Institute.

Title : Northern Agricultural Boundaries of the USSR
in the Years of 1913-1917, and 1955.

Orig Pub : Zap. Leningr. s.-kh. in-ta, 1956, No 10,
85-103

Abstract : No abstract.

Card : 1/1

MAKAROV, I.D., Col.

PA 50761

USSR/Medicine - Military
Medicine - Bibliography

Dec 1947

"Military Medical Bibliography for the Period 1941
to 1945," Col I. D. Makarov, Med Corps, 6 pp

"Voyenno-Medits Zhur" No 12

Part of series continuing through all issues of
"Voyenno-Meditsinskiy Zhurnal" in 1947. This part
contains bibliography of articles by various authors
on the treatment of injured spines and medulla.
Series continued.

LC

50761

MAKAROV, I. D., COL, (MED)

PA 53T71

USSR/Medicine - Medicine, Military
Medicine - History

Nov 1947

"The Thirtieth Anniversary of Soviet Military Medicine," Col I. D. Makarov (Med); Col Ya. I. Akodus (Med), 13 1/2 pp

"Voen-Medits Zhurnal" No 11

Briefly traces history of military medicine and outlines some of contemporary tasks and problems. For 30 years military might of Soviet Union has been increasing. Military medicine forced to keep pace with many new developments.

LC

53T71

MAKAROV, I. D.

PA 53T77

USSR/Medicine - Medicine, Military
Medicine - Bibliography

Nov 1947

"Bibliography of Military Medicine in World War II,"
Col I. D. Makarov (Med), 4 pp

"Voen-Medits Zhurnal" No 11

Continuation of a list of articles and books published
on various aspects of military medicine during World
War II. Discusses various facts concerning cranial
and encephalic wounds, also spinal injuries.

LC

53T77

MAKAROV, I.D., polkovnik meditsinskoy sluzhby.

Bibliography of military medicine during the Patriotic War (1941-1945)
(continued). Voен.-med.zhur. no.10:51-54 O '47. (MIRA 6:11)
(Medicine, Military--Bibliography) (Bibliography--
Medicine, Military)

MAKAROV, I.A. [Makarov, I.O.]; BORISENKO, Yu.A. [Borysenko, IU.A.]

New finds of volcanic ash in the Donets Basin. Geol. zhur. 23
no.4:51-61 '63 (MIRA 17:7)

1. Trest "Artemgeologiya", Artemovskaya kompleksnaya geologo-
razvedochnaya partiya.

STEZHENSKIY, A.I. [Stezhen'skiy, A.I.]; MARSHAL, I.A., khar.khu.podl;
PRIZHENNIK, Yu.A. [Prizhennik, Yu.A.];

Nomograms for determining the parameters of high-temperature
conversion of methane with hydrogen under pressure. Khim. prom.
[Ukr.] no.2:18-20 Apr-Je '65. (MIRA 18:6)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

VESELOV, V.V., kand. tekhn. nauk; MAKAROV, I.A., kand. tekhn. nauk

Ways to reduce the production costs of hydrogen. Khim. prom.
no.4:64-66 O-I '64. (MIRA 1A:3)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031500049-6

MAKAROV, I.A., kand. tekhn. nauk

Economic advantages of combining the synthesis of methanol with
the manufacture of hydrogen. Khim. prom. [Ukr.] no.3:66-68 J1-3
'64. (MIRA 17:12)

MAKAROV, I.A., kand.tekhn.nauk

Expansion of the production and consumption of fertilizers in
capitalist countries. Khim.prom. [Ukr.] no.1:83-85 Ja-Mr '64.
(MIRA 17:3)

MAKAROV, I.A.

Thirty-fourth International Congress of Industrial Chemistry.
Khim.prom. [Ukr.] no.1:90 Ja-Mr '64. (MIRA 17:3)

DANTSIG, G.N.; MAKAROV, I.A.; ORECHIN, D.B.

Removal of hydrogen sulfide from petroleum products by means
of ethanolamine solutions. Khim.i tekhn.topl.i masel 7 no.7:
12-15 J1 '62. (MIRA 15:9)
(Petroleum products) (Hydrogen sulfide)

MAKAROV, I.A.

International Symposium on the problems of distillation. Khim.i
tekh.topl.i masel 6 no.1:72-of cover; Ja '61. (MIRA 14:1)
(Distillation—Congresses)

150

S/00/00/000/06/001/004
E030/8112

Synthesis of Methanol over a Zinc-Chromate Catalyst with Reduced Concentrations of Carbon Monoxide in the Circulating Gas

rectified methanol with least waste product. The water content of the methanol decreases with decreasing concentration of carbon dioxide in the synthesis gas. Decreasing the carbon monoxide content increases its utilization; this, together with increased velocities, increases the process efficiency and makes the temperature regime in the catalyst zone so stable that process supervision is facilitated. To avoid sudden temperature rises and oxidation of the catalyst in the column during shut-down of the plant for repair without removing the catalyst, contact of the catalyst with air must be completely eliminated. If contact with air has occurred, the start-up must be in a hydrogen atmosphere up to 500-550 °C, until most of the air has been expelled. There are 4 figures, 7 tables and 3 Soviet references.

Card 2/2

81588

5/30/60/000/06/001/004
E036/2712

53400

AUTHOR: Makarov, I.A.

TITLE: Synthesis of Methanol over a Zinc-Chromate Catalyst
with Reduced Concentrations of Carbon Monoxide in the
Circulating Gas

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No 6,
pp 17-24 (USSR)

ABSTRACT: Paper presented on November 17 1959 at the All Union
Conference on Organic Catalysis, Moscow.

An improved system of methanol synthesis, consisting of destructive hydrogenation together with maintenance of carbon monoxide at 300 atmospheres at the 2-6% level in the circulating gas, has undergone five years of full-scale tests. The reduced carbon monoxide concentration enables the zinc-chromate catalyst to retain satisfactory activity for 2 or more years, compared with 4-6 months of life at 16-18% carbon monoxide concentration. It also gives a much purer methanol, by tending to suppress side and secondary reactions, so that the aldehyde plus ketone content is reduced to about 0.03%, and sulphur retained only in trace quantities: this ensures obtaining exceptionally high quality
Card 1/2

MAKAROV, I.A.

Liquid phase hydrogenation of petroleum residues in the
presence of a suspended catalyst. Trudy Vost.-Sib.fl.AN
SSSR no.26-92-97 '59. (MIRA 13:6)
(Petroleum--Refining) (Hydrogenation)

MAKAROV, I.A.

Hydrogenation of petroleum distillates on fixed bed
catalysts. Trudy Vost.-Sib.fl.AN SSSR no.26:86-91 '59.
(MIRA 13:6)
(Petroleum products) (Hydrogenation)

BOGDANOV, I.F.; LAVROV, N.V.; MAKAROV, I.A.; PINSKER, A.Ye.; CHERNENKOV, I.I.

Possibility of obtaining synthesis gas in semicoke-
producing ovens using an air blast enriched with oxygen.
Gaz. prom. 4 no.11:18-22 '59. (MIRA 13:2)
(Gas manufacture and works)

BLINOV, G.I.; MAKAROV, I.A.; PINKHUSOVICH, R.L.

Using radioactive control and regulation devices in hydrogenation
plants. Khim. i tekhn. topl. i masel 4 no.1:15-19 Ja '59.
(MIRA 12:1)

(Radioisotopes--Industrial applications)
(Liquid level indicators)

Use of Air Enriched With Oxygen in Partial
Carbonization of Coal

SOV/67-59-2-1/18

natural gas (for conditions prevailing in East Siberia) (Table 4). The oxygen consumption does not exceed 40-50 % with respect to the amount required by direct gasification of coal by means of oxygen (producer gas) (Table 3). Table 2 and figures 3-7 (Diagrams) contain the technical characteristics of oxygen- and air consumption, composition and calorific value of the gas, furnace output, etc with various additions of oxygen. There are 7 figures, 4 tables, and 14 Soviet references.

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Use of Air Enriched With Oxygen in Partial
Carbonization of Coal

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described. For the purpose of investigating the dependence of the gas yield on temperature during the coking process the authors made laboratory experiments with Cheremkhovo coal. Data on the composition and yield of the gas are listed in table 1. The investigations were conducted by Engineer L. F. Ovsyannikov, with the assistance of Engineer V. M. Shiktorov, Engineer A. I. Gorokhova, and Engineer K. A. Bogens. In addition, the influence exercised by various oxygen contents on the composition and calorific value of the gas obtained was investigated. The following data were obtained: In addition to semicoke and tar, gas with a calorific value of $2,200 \text{ kcal/nm}^3$ is obtained during the partial carbonization of coal in multizone shaft furnaces, using an air-oxygen blowing engine with an oxygen content of up to 30 and 35 %. A gas is produced by oxygen enrichment of 40 % which after further treatment can be used for synthesizing ammonia. With an enrichment of 50 % and more a gas results which has a calorific value of $4,000 \text{ kcal/nm}^3$. Prime cost per calorie of the gas obtained does not differ greatly from that of

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21(1),11(2)

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TITLE:

Use of Air Enriched With Oxygen in Partial Carbonization of Coal (Primeneniye obogashchennogo kislородom vozdukha pri polukoksovanii uglya)

PERIODICAL:

Kislород, 1959, Nr 2, pp 1-9 (USSR)

ABSTRACT:

An air-blowing engine has hitherto been applied in multizone shaft furnaces, of which general use is made in partial carbonization of coal. In addition to semicoke, semicoke gas was produced which contained a large quantity of nitrogen. Thus this gas is very unfavorable for further use for heating and technical purposes. Consequently, the authors made an experiment with industrial furnaces in which they tried to use air enriched with oxygen. As a result, the semicoke gas was considerably improved and the coking process was intensified. A diagram of a multizone furnace for partial carbonization of coal is shown in figure 1, and its mechanism is

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SOV/65-58-5-1/14

Conversion of Units for the Methanol Synthesis and Destructive
Hydrogenation Processes to Autothermic Conditions.

It was found that the unit functioned autothermically under these conditions. The output of the unit increases when the content of carbon monoxide in the circulating gas is increased to 5 - 6%. Units with continuous heating arrangements are more easily handled, and more constant when the composition and the quantity of gas varies, and also under industrial conditions. The process is of great importance for the preparation of synthesis gas from natural and other hydrocarbon gases. There are 2 Figures, 6 Tables and 5 Soviet references.

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SOV/65-35-5-1/14

Conversion of Units for the Methanol Synthesis and Destructive Hydrogenation Processes to Autothermal Conditions.

the second part is purified by copper-ammonia, and led to the hydrogenation apparatus. Average monthly data on the temperature regime in the catalysis zone - Table 1. Gas currents characterizing the consumption of fresh synthesis gas and the quantity of circulating gas - Table 2. Average monthly data on the composition of the synthesis and circulating gases - Table 3. Average data on gas currents during 24-hour test heating of the unit - Table 4. The maximum supply of synthesis gas during the experiment = 38,000 m³/hour. Average data on the composition of the gases during the time of the experiment - Table 5. Fig. 2 shows the reading of the apparatus characterizing the temperature regime in the catalysis zone during the cutting-off of the supply of the fresh synthesis gas. Fresh gas is supplied for forty minutes and on supply of the synthesis gas the temperature increased sharply. Table 6 gives data on the composition of gases when the unit is working on a maximum content of carbon monoxide in the circulating gas. This experiment was carried out continuously during four days when the minimum content of carbon monoxide in the circulating gas was 1.1%.

Card 2/3

AUTHORS: Makarov, I. A. and Nuzayev, V. M. SM/65-38-5-1/14

TITLE: Conversion of Units for the Methanol Synthesis and Destructive Hydrogenation Processes to Autothermal Conditions. (Perevod agregata slatesa metanola, sovmeshchennogo protsessami destruktivnoy gidrogenizatsii, na avtotermicheskuyu rezhimu).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1968, No. 5, pp. 1 - 4 (USSR).

ABSTRACT: The authors calculated and investigated units with continuous heating and showed that it was possible to carry out the process autothermally when using a synthesis gas containing 5 - 8% of carbon monoxide by entering the catalysis zone. The unit comprises one high pressure column with shelf packing, two heat exchangers, a cooler-condenser and a separator. The volume of the catalyst submerged in the column = 9 m³. The fresh synthesis gas is mixed with a circulating gas on entering the heat exchanger, and after heating enters the catalyst zone. The reaction product and the circulating gas pass through the heat exchanger, the cooler-condenser and enter the separator. Methanol is led from the separator to a receiver; part of the circulating gas is recycled,

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Investigations on Combining the Synthesis of Methanol with Des-
tructive Hydrogenation Processes. ^{65-1-3/14}

fication plant was included (Fig.4). The process:
methanol-ammoniacal-copper purification - hydrogenation
proved to be economical and could be controlled easily.
More than 100,000 tons of methanol were produced without
changing the catalyst. Operating data are given (Tables
10 - 12). The introduction of the second stage is not
mentioned. The problem of the conversion of CO by
destructive hydrogenation is discussed. Table 13 gives
thermodynamic calculations for the proposed reaction.
There are 13 Tables, 4 Figures and 5 Russian References.

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65-1-3/14

Investigations on Combining the Synthesis of Methanol with Destructive Hydrogenation Processes.

Fresh synthesis gas is diluted with the recirculated gas to decrease the CO concentration and to prevent carbonyl corrosion of the heat exchangers. The synthesis plant is described. Mean monthly compositions of the synthesis and circulating gas (Table 1), data on crude methanol (Table 2) and data on the temperature distribution in the catalyst (Table 3) are given. An analysis of the plant operation shows that, with low CO concentrations, the process can be controlled easily. A modified plant is shown in Fig.2 when an additional synthesis column was joined in parallel. Plant operating data are given in Tables 4 - 9. The water gas still contained a high percentage of nitrogen, inspite of a considerable blow-off of the residual gases. In view of this a scheme was developed in which gas from the methanol synthesis passes into an ammoniacal-copper purification plant where it is freed from oxygen containing admixtures and passed into an ammonia synthesis plant, where nitrogen is converted into ammonia. The gas is then led to the hydrogenation plant (Fig.3). This scheme was carried out in 2 stages: (1) only the ammoniacal copper puri-

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MAKAROV, I. A.

AUTHORS: Makarov, I. A. and Nizyayev, V. M. 65-1-3/14

TITLE: Investigations on Combining the Synthesis of Methanol with Destructive Hydrogenation Processes. (Opyt sovme-shcheniya sinteza metanola s protsessami destruktivnoy gidrogenizatsii).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr.1. pp.9-17). (USSR)

ABSTRACT: Data on 2 years experimental plant work are given in which the synthesis of methanol was combined with des-structive hydrogenation. These experiments were based on the idea of replacing the purification of hydrogen from CO with an ammoniacal solution of a copper salt by the synthesis of methanol. The gas (after washing with water) contains 5% CO; this content is decreased to 1 - 2%. After the condensation of methanol, the gas is used for hydrogenation. Initially, the methanol syn-thesis plant was connected to the vapour phase hydroge-nation plant, by-passing copper-ammoniacal purification (Fig.1). In the hydrogenation plant the petroleum raw materials are treated in the form of a kerosene-gas oil fraction, vacuum distillate and a mixture of medium frac-tions of tar from semi-coking and crude petroleum oil.

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nykh soyuzov.

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